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COW-SHARE AND BULL LEASING ARRANGEMENTS - WHAT'S FAIR AND ECONOMICAL

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INTRODUCTION

Today's beef producer faces a difficult economic climate. Prices for calves, feeders and fed cattle are low compared to 2 years ago. Feed grain prices are soaring due to high demand and short supply. Access to borrowed capital could become limited for some. Cow-calf producers, especially, need to control costs and yet maintain productivity. Cash leasing of bulls and share-leasing of cows may offer ways to help control costs and acquire capital, if such arrangements are fair and offer all parties the opportunity to succeed.

COW-SHARE LEASE

A cow-share lease is a contractual arrangement between two or more parties where one owns cows and the second owns all or part of the other resources necessary for producing calves. As with many agreements in agriculture, they come in all shapes and sizes! In most instances the cow owner also furnishes the bulls, but not always. Sometimes the cow owner furnishes part of the feed. Usually the second party furnishes all the labor.

Share arrangements offer a way to place capital (cows) in the hands of resource-short individuals. They are also useful for transferring ownership over time to others, especially family members. These agreements also permit the sharing of price and production risk between two or more parties.

Share leasing may not be for everyone. Those who enter into these contractual arrangements give up some degree of control and decision-making authority. If the share arrangement is fair from an economic standpoint, then returns to the various resources should not be significantly different from a situation where the cows and other resources are owned by one individual.

What is fair?

Fairness is in the eyes of the "beholder." What may appear fair to one may not be to another. The agreement must be fair in the eyes of **all** those agreeing to its terms if they are going to continue to do business together.

The traditional arrangement in an area is one way of judging fairness. A recent survey of Nebraska Sandhills ranchers (Clark and Coady, 1993) found that about 7 percent of survey respondents were involved in some sort of share agreement for cows. Typically the cow owner

received between 30 to 40 percent of the calf crop. The cow owner also usually furnished the bulls. The rancher (lessee) provided the feed, labor, management, and veterinary expenses.

Common does not, necessarily, mean fair. One way to be fair is to share output in the same proportion that costs for all inputs are shared. In other words, if one party provides 35 percent of the value of all inputs, then that party should get 35 percent of the output. This method works reasonably well if risks associated with the agreement are ignored. Risk is a real element in agriculture and can be dealt with in a fair agreement.

Who risks what?

The cow owner usually bears all the ownership risk which comes about through death loss of cows (if not covered in the agreement), value of the cows, price received for cull cows, and interest rate changes. The type of lease arrangement determines who bears price and production risks associated with the calves. If the lease arrangement happens to be a cash lease where the rancher pays the cow owner a flat dollar rental value, then the rancher assumes all production and price risks. An arrangement where the cow owner is paid by a set number of calves results in sharing of price risk, but the rancher bears all the production risk. When the share is based on a given percent of weaned calves, both price and production risk are shared between cow owner and rancher. Feuz et al. (1990) argue that the fairest arrangement is when the cow owner receives a fixed number of calves based on some expected production level and the relative amounts of inputs contributed by both parties. They further suggest that agreements where the cow owner receives a fixed percent of the calves can be made more fair if the cow owner's share is a bit larger than his relative contributions. Such an argument is logical since the cow owner is accepting all of the ownership risks.

Determining relative contributions

The procedure for determining relative contributions of the contracting parties seems quite simple, but that can be misleading. The economic value of the inputs contributed by each party are added and then divided by the **total** value of **all** inputs (Robb et al., 1989). The more difficult part is valuing various inputs. For example, how do the cow owner and lessee value the cows? The word is **negotiate!** If you are not willing to negotiate such issues, then a share arrangement may not be for you. Suppose that they settle on \$800 per head as the value of the cows. What is a reasonable rate of return to the cow owner's investment? The cow owner reasons that she could get 7 percent return from U.S. treasury bills and the investment would be safe. The rancher believes that the long run return to resources in agriculture is only about 3 to 4 percent and that ought to be an adequate allowance for the cow owner. Again the word is **negotiate!**

Table 1 gives an abbreviated format that could be followed to either set up an agreement or to evaluate an existing arrangement. Table 1 is meant to be filled out in dollar measures for each item and on a per cow basis. For those interested, a computer spread sheet is available to assist in this chore (Robb et al., 1989).

Table 1. Procedure for determining contributions of cow owner and rancher

INPUT ITEM	Cow Owner (1)	Rancher(2)
FEED	////////	////////
Spring and summer grazing		
Winter grazing		
Hay		
Supplement		
Salt and Mineral		
Other		
LABOR	////////	////////
General		
Calving		
OTHER CASH EXPENSES	////////	////////
Veterinary & supplies		
Insect control		
Equipment repairs		
Other		
Interest on cash expenditures		
CAPITAL ITEMS	////////	////////
Interest on breeding stock		
Depreciation on breeding stock		
Death loss on breeding stock		
Property tax on breeding stock		
Charge for use of buildings and equipment		
MANAGEMENT		
TOTAL FOR EACH PARTY		
GRAND TOTAL (column 1 + column 2)		
PERCENTAGE SHARES	Tot. (1)/ Grand Tot. _____%	Tot.(2)/ Grand Tot. _____%

Evaluating the resources

Proper evaluation of the various inputs is an important and sometimes difficult task. Parties to the agreement must be careful not to double count various inputs. Table 1 does not

show a line for a return to land. That was not an oversight! If the feed resources, especially hay and grazing, are charged at their opportunity cost (market value), then those charges already include a return to land. Charging a separate rate of return on the land would be double counting. If the preference is to charge a fair rate of return on the land, then the hay and grazing values must be reduced accordingly. The value of land and what constitutes a "fair rate of return" again become negotiable issues much like that for the cow discussed above.

The contribution for **land**, evaluated separately, must be treated cautiously to avoid double counting inflation. If land is valued at current market prices, it reflects ongoing inflation. Current interest rates also contain inflation. If the landowner estimates the land's contribution by using current interest rates, then inflation is double counted. To avoid that pitfall, either land or the interest rate should be deflated. For example, the current inflation rate is about 3 percent per year. If long term loan rates on land are at 9 percent, then a deflated or "real" rate of interest would be 6 percent.

Labor could also be easily double counted if the rancher figured his or her labor for producing the hay necessary for feeding one cow unit. The value of that labor should already be reflected in the market value of the hay. Similarly, the labor for summer grazing "might" be included in the market value. Does the grazing rate being used include care of the animals during the grazing period? Often summer rates do include labor, as well as return to land and other resources such as fencing and water.

Labor not included in other measures should be estimated and valued fairly. If the rancher has had much experience with cows, then she or he can estimate labor requirements. Table 1 shows calving labor separate from other labor. While separating labor is not totally necessary, the idea is that not all labor is of equal value. Calving labor may be valued at a higher rate than other duties. The hourly wage rate to charge is again an item that could be negotiated between the contracting parties.

The **other cash expenses** are mostly self explanatory. The interest on cash expenses may represent a real cost to the party paying the expense in the form of interest on an operating loan. In that case, the interest rate may be the rate paid on the loan. Interest may represent an opportunity cost if the party does not need to borrow money. In either case, it should be credited to the party or parties paying the various cash expenses.

The charges for **capital items** are very crucial to the fairness of the agreement. Some of the issues already discussed are related to valuing the cow and the expected rate of return. In addition, economic depreciation on the breeding stock must also be measured. Appropriate measures of depreciation for these purposes are likely to be different from depreciation on an income tax form. Simple, straight line depreciation can be used by subtracting the animal's salvage value from its value when entering the herd and dividing by the expected productive years of life. For example, suppose the cow owner purchased a bred 2-year-old heifer for \$800 and expects to be able to sell her as a cull at the age of 10 for \$400. The annual depreciation would be \$50 [$(\$800 - \$400) / 8$]. Bull depreciation would be figured similarly except the resulting depreciation would be divided by the number of cows per bull to put the depreciation on a per cow basis.

In many share situations, the rancher will provide most if not all of the **management**. Management is difficult to evaluate. A rule of thumb often used is to charge 5 to 8 percent of the gross from sales of calves and/or yearlings. The management return can be approximated in advance by estimating the pounds of calf weaned per cow exposed. For example, suppose you expect steers and heifers together to average 525 pounds at weaning. Furthermore assume that 90 percent of the cows exposed to a bull actually wean a calf. Then about 473 pounds ($.90 \times 525$) of calf will be weaned per cow exposed. If the average of steer and heifer calf prices is expected to be \$0.75/pound, then the gross per cow exposed would be \$355 ($473 \times \0.75). A 6 percent rate of return for management would result in a management charge of \$21 ($\355×0.06) per cow.

Effects of changing cow and calf values on share arrangements

As indicated above cow owners as well as lessees face risks. To provide an example we looked at a cow-share arrangement following the guidelines set out above. Per cow costs were based on University of Nebraska budgets (Selley et al. 1995). Initial cow values were placed at \$1000 which was common a couple of years ago. The bull (worth \$2000) was assumed to be furnished by the cow owner who also paid half veterinary/medicine costs. All other costs were paid by the rancher (lessee). This arrangement resulted in a 70/30 split where the cow owner furnished 30 percent of all costs (shown as Base in Table 2). With weaned calves at about \$100/cwt., both parties more than covered all costs and the cow owner received over a 6 percent return on investment. Cull cows were assumed to be worth \$550/head and cull bulls were valued at \$1200. If the value of cull cows and bulls drops to \$400 and \$800 respectively, the cow owner's share of costs increases to 33 percent since depreciation has gone up. Alternative 1 in Table 2 represents a cow-share arrangement based on the original 70/30 split but with the reduced cull values.

Table 2. Impact of changing cow, bull, and calf values on cow owner with original agreement

	BASE	ALTERNATIVE 1	ALTERNATIVE 2
% SHARE--COW OWNER	30%	30%	30%
TOTAL COST-COW OWNER	\$142	\$164	\$164
TOTAL RETURNS-COW OWNER	\$144	\$144	\$101
% RETURN ON INVESTMENT	6.2%	4.1%	0.1%

Suppose at the same time that cull values fall, calf prices also fall so that steer and heifer calves are now worth \$400 and \$350 per head, respectively (Alternative 2 in Table 2). If the base agreement is followed, the cow owner's rate of return is now near zero.

The lessee is as well off in Alternative 1 as in the base, since he or she will receive the same and the lessee's costs have not changed. Since revenue falls in Alternative 2 and costs do not change, neither party covers all their costs. About 37 percent of the cow owner's costs (assuming a 6 percent rate of return as a cost) are not covered in Alternative 2, whereas only 28 percent of the lessee's costs remain uncovered. Therein lies the fairness issue and the fact that the

cow owner is exposed to more relative risk than the lessee. However, in absolute terms the lessee is subject to larger dollar losses simply because he or she has more invested.

Effect of alternate cow values on share arrangement

Cow values for both initial investment and culls, affect the contribution of the cow owner. Return on investment and depreciation are the primary values impacted by changing the values of the cows and culls. The first example (Table 2) showed how the outcome of an agreement changed when the percentage received by each party was based on initial cow and cull values and when the cull values declined.

Cow values can be a point for debate in deciding an initial share arrangement due to honest differences in the way different producers view the same set of cows and the market conditions. Table 3 shows how shares would change with various sets of cow and cull values. All these values assume the other costs, including bull value, do not change. Cows are assumed to be young and are depreciated for 8 years and the cow owner wishes to realize a 6 percent return on his or her investment. The important thing to notice from the table is how the share changes. The absolute level of the share depends on the costs of the lessee, which can vary depending on the year and the resources.

Table 3. Cow owner contributions to total costs with changing cow and cull values.¹

Cull Value (\$)	Cow Value					
	\$1000	\$900	\$800	\$700	\$600	\$500
600	30.0%	27.0%	23.5%	20.0%	16.0%	NA
500	31.5%	29.0%	25.5%	22.5%	18.5%	14.5%
400	33.5%	31.0%	28.0%	24.5%	21.0%	17.5%
300	35.0%	32.5%	30.0%	26.5%	23.5%	20.0%

¹ Values in table are rounded to nearest 0.5%.

An investor who wishes to share lease cows purchased at today's prices should expect a lower percentage of calves compared to cows purchased at higher prices. Table 3 shows that the cow owner's contribution to total costs declines from 2.5 to 3.5 percent for each \$100 drop in cow value. A cow owner demanding higher share of calves may force the lessee to give up the cows, since it would be very difficult for the lessee to cover even cash costs if the percentages are too much out of line. Cow owners who are in the business of leasing cows on share basis must remain flexible during low points in the price cycle unless they wish to see the cows come home. It will be difficult for either party to cover costs, even with the fairest agreements, with prices being realized this fall.

Impact of share-lease on Social Security taxes and benefits

Income from leasing cows is treated similar to farm land rental income. The cow owner would not pay Social Security taxes (or earn credits) on rental income unless he or she is a material participant in the production or management of the enterprise.

Whether or not the cow owner wishes to "materially participate" depends on his or her circumstances. Material participation by an individual under age 70 who is eligible for Social Security benefits may result in the loss of benefits in some circumstances. For 1995 an individual may earn up to \$11,280 without losing benefits if he or she is 65 through 69 years of age. The limit drops to \$8,160 for those 62 through 64. Seventy and over, there is no limit on earnings. If cow owners want to add to their Social Security base, they need to materially participate.

Material participation for Social Security exists if the cow owner satisfies any one of the following 4 tests.

- Test 1. The producer does any three of the following activities:
- A. Inspect production activities (e.g. calving, feeding). Inspecting property or improvements does not count!
 - B. Consult with the tenant about production of the cow enterprise.
 - C. Furnish at least half (maybe less under some circumstances) of the tools, equipment and livestock used in the enterprise.
 - D. Share at least half (maybe less under some circumstances) of the production expenses.
- Test 2. The cow owner regularly and frequently makes decisions that significantly affect the success of the farm operation.
- Test 3. The cow owner works at least 100 hours spread out over 5 or more weeks on activities connected to the cow enterprise.
- Test 4. Even if the cow owner does not meet Tests 1, 2, or 3, her or his activities when considered together may be enough for a ruling of material participation.

For Social Security purposes, there are some differences between renting land and cows. Cull cows do not count as income for Social Security taxes and benefits. They are treated as capital assets and so are taxed as a capital gain when sold. If the cow owner is living on the farm where the cows are kept, it may be difficult for him or her to claim no material participation. Since material participation is a "fuzzy" issue, we encourage producers to consult their tax advisors.

LEASING BULLS FOR CASH

A few producers are in the business of leasing bulls for cash. In most cases the bulls spend only the breeding season in the lessee's care which may be one way of reducing costs depending on the lease fee. Another attractive feature of leasing bulls is the reduced pressures on cash flow for capital purchase. Health and cost are the two basic concerns for someone considering bull leasing.

Costs of owning a bull

Evaluation of a bull lease requires a cost comparison with owning the bull. What are the annual costs of owning a bull? The purchase price, time in herd, and potential salvage value are major factors in that determination. Table 4 shows annual ownership costs for various bull purchase prices and salvage values assuming an 8 percent cost of capital and keeping the bull 3 or 4 years.

Other costs for keeping a bull also add up (Selley et al., 1995). Feed costs alone for winter and summer are estimated to be near \$350/bull/year. Other cash costs including veterinary and medicine, marketing of culls, death loss (one percent) and miscellaneous, add another \$35 to the cost. Labor for feeding, handling etc. could be worth about \$45. These costs add another \$430 to the total for keeping a bull for a year. Even with the lowest ownership cost in table 4, total bull cost can amount to in excess of \$600 and can easily be over \$1000/year. If that bull is used only for 25 cows, the breeding cost could be \$40/cow or more.

Table 4. Annual depreciation and interest costs for bulls retained 3 or 4 years

Salvage Value	Purchase Price				
	\$1500	\$1750	\$2000	\$2250	\$2500
Own for 4 years	Annual depreciation and interest costs (\$)				
\$1000	225	298	370	443	515
800	267	340	412	485	557
600	309	382	454	527	599
Own for 3 years					
\$1000	267	360	453	547	640
800	325	419	512	605	699
600	384	477	571	665	757

Bull owners in the business of leasing bulls charge in the range of \$500 to \$700 depending on the year and the bulls. Since the leased bull is only fed during the breeding season, one should deduct breeding season feed costs from the cost of owning a bull for comparison. A 1500 pound bull will require from 3 to 4 AUMs of grass during the breeding season. At \$20/AUM, breeding season feed costs amount to \$60 to \$80. A \$2000 bull retained for 4 years will cost about \$770 (\$412+\$430-\$70) to own and maintain excluding feed costs during breeding.

Health considerations

Ideally, we recommend adding only virgin bulls to the bull battery for the cow herd. When leasing bulls, this may not always be an option. Virgin bulls minimize the risk of introducing venereal diseases into the herd. The two common venereal diseases

(spread by breeding) are vibriosis (campylobacteriosis) and trichomoniasis. These diseases can reduce pregnancy rates by 20-30 percent and result in many late bred and open cows.

Vibriosis is a bacterial disease that can be controlled by a good annual cow herd vaccination program. Bulls can be vaccinated for vibriosis. Most bull leasing firms vaccinate as an added precaution.

Trichomoniasis (trich) is caused by a protozoan parasite that inhabits the prepuce (sheath) of bulls. Bulls 4 years old and older can become chronically infected but trich can also be found in some younger bulls. A non-virgin bull should have 3 preputial cultures a week apart to be declared free of trichomoniasis. There is a vaccine for cows that can be used in high risk herds. The best approach, however, is the 3 preputial cultures of the non-virgin bulls.

Leptospirosis is an infertility and abortive disease that can be a problem in some areas. A good cow herd vaccination program including a 5-way lepto can prevent this disease. Again, most bull leasing firms maintain their bulls on a lepto vaccination program.

A bull breeding soundness examination should be done yearly, 1 to 2 months prior to the breeding season. This should be provided by the bull leasing firm.

Leased bulls should not be run with non-leased bulls. Good records should be kept on each bull as to breeding, pasture, cows, date in and date out to help evaluate breeding efficiency. Bulls should be observed frequently to evaluate libido, actual breeding and detect injuries.

The major health expense to a producer leasing bulls would be the preputial cultures. This could cost from \$15-40 per culture, depending on the number of bulls and other procedures the practitioner is performing while the bull is in the chute. Most bull leasing firms would have culture work done prior to leasing the bulls.

The best advice would be to discuss bull leasing with your veterinarian. He or she can contact the veterinarian in charge of the herd health of the bull leasing firm to evaluate the herd health program and help you consider the pros and cons of bull leasing for your cow herd.

Other considerations

While health and economic issues are keys to the lease decision, other important questions should be considered. Are EPDs available for the leased bulls? Can you pick the bulls? Are appropriate breeds available year after year to match your breeding program?

What about guarantees for breeding failure? Some bull suppliers guarantee the breeding soundness of the bulls for the breeding season. Who is responsible for death loss or damage to a bull such as a cripple? Can you obtain a replacement with a bull of comparable breed and quality during the breeding season? The availability of replacement bulls from the lessor may be an important advantage to a lease program.

Costs and tax considerations of leased bulls

In addition to lease fee, the lessee is usually responsible for trucking costs both ways. Bulls are usually available at the lessor's place of business or, in some cases, may be delivered to

a central point. The lessee is responsible for proper care and feeding of the bull during the breeding season. After the leased bulls are returned, the costs stop which is a possible advantage.

A producer should also consider the tax effects of bull leasing. The entire lease fee is a cash expense which can be deducted for income tax purposes, provided the lease agreement is a valid agreement in the eyes of IRS. A lease/purchase agreement where the bull would be purchased at the end of lease for a value substantially below market may not work for IRS purposes.

Owned bulls can be depreciated over a 5-year period and can take advantage of accelerated depreciation schedules. The producer may also be able to expense out the entire capital purchase under section 179 of IRS code. That section permits expensing up to \$17500 of capital purchases per year. Unless a bull is purchased from borrowed capital, there will not be any way to expense interest cost on the investment. We suggest consulting with your tax accountant to estimate tax consequences of buying versus leasing.

CONCLUSIONS

Share leasing cows is a way to transfer ownership through time or to place capital (cows) in the hands of capital short operations. It may save costs through reducing interest payments, plus it could reduce cash flow needs for capital purchases. Agreements must be developed that are fair to all involved. All parties must have the opportunity to make money or the agreement will not last.

Cash leasing of bulls can also reduce cash flow needs and possibly other costs. However, the pros and cons of such practices need to be carefully weighed. Health concerns are of utmost importance and should be carefully investigated. The quality of the leased bulls and policies of the lessor should also be well understood before bulls are received.

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